In the chapter on plants, roots are said "to suck up water through tiny mouths," "to search for lime salts," and "to pick up compounds of potash." Of some plants we read, "They determined to do by cunning what they could not accomplish by force," "One very clever tree seems to have foreseen this danger and provided a remedy." "The hazel never intended to grow nuts either for boys or squirrels." "The pitcher plant and Venus's fly trap which set most ingenious snares for insects, and devour them when caught."

The point of view of the whole of this chapter is unscientific, for plants do not do any of these things intentionally, and to attribute intelligence to them is misleading.

The illustrations are line drawings enclosed in circles for reproduction as lantern slides. In many cases a scale should have been provided. The diagram of a bean seed (p. 49) is very poor.

Gold Seeking in South Africa: a Handbook of Hints for intending Explorers, Prospectors and Settlers. With a chapter on the Agricultural Prospects of South Africa. By Theo Kassner. Pp. x + 134; with maps and illustrations. (London: Charles Griffin and Co., Ltd., 1902.) Price 4*s.* 6*d.*

NOW that a new era is opening in South Africa, the appearance of any book giving information likely to be useful to intending immigrants is opportune. It will not be taken for granted by everyone that the last discoveries of gold in the Transvaal have already been made, and the venturesome prospectors who go there should include this little book in their outfit, as it is written by one who knows the country well. It contains some useful notes on the geology and history of the Transvaal goldfields, and a number of sketch maps. The De Kaap goldfield is treated somewhat more at length than the others, although even this account can hardly be called exhaustive. The illustrations are numerous, but a protest must be made against the inclusion of some of them, particularly of Fig. 6, which is said to represent a pestle and mortar.

A Text-Book of Inorganic Chemistry. By Dr. A. F. Holleman. Rendered into English by Hermon C. Cooper. Pp. viii + 458. (New York: John Wiley and Sons; London: Chapman and Hall, Ltd., 1902.) Price 10*s.* 6*d.*

THE German edition of this Dutch work was noticed in NATURE, vol. lxii. p. 598, October 18, 1900. A reperusal shows that considerable improvements have been made in the English version. The translation is entirely satisfactory, and the book may be recommended as a lucid and scientific account of inorganic chemistry. It includes a great deal of well-expounded physical chemistry and also many incidental matters of interest that are not usually found in works on inorganic chemistry. It is likely to prove very acceptable to those who wish to have a moderately advanced book of inorganic chemistry embodying an unaggressive presentation of the most modern discoveries and theories.

The Bernese Oberland. By G. Hasler. Vol. i. From the Gemmi to the Mönchjoch. Pp. xxv + 164. (London: T. Fisher Unwin, 1902.) Price 10*s.*

THIS is the first volume of a series of four intended to guide climbers to the peaks and passes of the High Alps of the Bernese Oberland. The routes are arranged in chronological order of the conquest of the peaks to which they lead, and are dealt with in six sections referring to the Balmhorn, Breithorn, Blümlisalp, Bietschhorn, Aletschhorn and Jungfrau groups. With this guide in his pocket, a climber will be able to explore districts which, happily, have not been entirely permeated by the show and tourist spirit characteristic of more frequented spots, and are full of interest.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

Archæological Remains on the Summit of the Nevado de Chañi.

DURING the excursions that were made under my direction in 1901–1902 in the north of Argentina and the south of Bolivia from the Puna de Atacama to Crevaux at Pilcomayo, some of my comrades climbed to the top of Nevado de Chañi about 6100 metres in Puna de Jujuy.

Two ascents were made, the first by Count Eric von Rosen, the second by Dr. R. Fries, Mr. G. von Hofsten and Mr. Wenceslao Mercado. Von Rosen ascended quite near to the top, the others reached it. The summit is of granite; on the north-west side the rock is sandstone.

Dr. Fries made botanical collections. On the top he found lichens. The microscopical life of the snow was poor. The snow line was about 5600 metres. On the side of the mountain there are remains of old houses. On the top there are small walls, and there Hofsten and Fries found pieces of pottery, a little green stone worked by man, a depot of wood of cactus, tola, &c. The walls were built in two small squares with one side open. One of the pieces of pottery was painted with a wedge-shaped (kilformigt) ornament, quite similar to ornaments found by Count von Rosen on pottery from Ojo de Agua, a pre-Columbian "pueblo" in the Quebrada del Toro, some miles to the south. The wood was found both inside and outside of the walls and very well preserved; probably this may be explained from the fact that at this height there are no, or few, microbes. Also in the Puna about 3500 metres above the sea in the pre-Columbian grave-fields, there are still preserved pieces of clothes, skin, instruments of wood, &c.

It seems to me probable that these small walls on the top of the Chañi are the remains of an old sacrifice or signal place from pre-Columbian time. ERLAND NORDENSKIÖLD.

Dalbyo, August 14.

Radiant Point of the Perseids.

YESTERDAY morning, August 11, I watched the northern sky for shooting stars from a place near Baddeck, Nova Scotia, from 0h. 30m. to 2h. 15m. (Atlantic time). During this period I observed forty-nine meteors—mostly faint—forty-one of which appeared to radiate from the constellation Perseus.

While trying to locate the radiant point, I noticed a speck of light flash out in Perseus, which died away without apparent change of position, as though a third-magnitude star had suddenly appeared and disappeared. This was probably due to a meteor advancing directly in the line of sight, in which case the location of the luminous point perceived may be of importance to astronomers, as an indication of the radiant point of the Perseids.

The right ascension was about 2h. 35m., declination +56°, as nearly as I can make out from a star chart. I may say frankly, however, that I am not accustomed to make observations of astronomical positions. I can point out the exact position in the sky, and would be very glad if some of my astronomical friends would care to verify the R.A. and Decl.

I may add that the paths of most of the Perseids observed seemed to intersect at or near the point where the stationary meteor appeared. ALEXANDER GRAHAM BELL.

Baddeck, N.S., August 12.

Earth Surface Vibrations.

IN NATURE for August 14, Mr. Charles Stewart writes from the Cape stating that exceptionally rapid barometric variations took place there on the morning of May 28. Mr. Hill states in the same number of NATURE that on the morning of May 8, Mr. Ferdinand Clerc, at St. Pierre, "observed the needle of a large aneroid barometer pulsating violently."

The two similar barometric movements at different places suggest that the air disturbances at St. Pierre did not cause the barometric movement there.

Mr. Stewart assumes there was an earthquake at the Cape for the reasons he gives. But the Royal Observatory showed no record of any seismic disturbance.

If the earth movement took place at the Cape as an absolutely *perpendicular* vibration, would the seismograph have recorded it?

Can sudden and abnormal change in atmospheric pressure cause volcanic or other disturbance on the earth?

August 19. F. C. CONSTABLE.

IN NATURE, August 14, p. 371, it is stated that "at 7 o'clock on the morning of May 8, Mr. Ferdinand Clerc observed the needle of a large aneroid barometer pulsating violently." Above this there is, however, another note which says that "nothing unusual was observed in the barometer." But even supposing barometric perturbations to have taken place on May 8 in St. Pierre, what connection could these have had with phenomena which happened twenty days later at the Cape of Good Hope?

The Milne horizontal pendulum installed at this latter place will record disturbances originating at its antipodes, but will not respond to the rapid elastic vibrations of local shocks. You may hear seismic sounds, windows and doors may rattle, but the instrument in question will remain at rest.

The movement of an earth particle at the time of an earthquake is in all azimuths and at varying angles with the horizon. A strictly perpendicular movement seems an impossibility.

Abnormal changes in atmospheric pressure may act on a region in a state of excessive seismic or volcanic strain much in the same way as the last straw is said to act upon the camel's back; the relationship, however, is far from being pronounced. This and other questions referred to by Mr. Constable are discussed in the volumes on "Seismology" and "Earthquakes" published in the International Scientific Series. J. M.

August 26.

Larva Stage of Heliocopris Isidis.

IN the month of March last, I discovered at a depth of a few cm., among the roots of the tree *Albizzia lebbek*, several large balls of earth, varying in diameter from 5·0 to 8·5 cm. These on being broken open were found to be hollow spheres, the thickness of the wall being about 1·5 cm. This wall was composed of concentric layers of mud and bits of vegetable matter mixed, having the composition and appearance of native unburnt bricks.

Inside the sphere was a coleopterous larva about 2·0 cm. in diameter at its thickest part, about 9·0 cm. in length measured along the dorsal line, and about half that length measured along the ventral line; the larva lay on its side and assumed a curved position. A few days ago, an imago of *Heliocopris Isidis* emerged from one of the balls by boring a hole in the roof of its cell just large enough for it to pass through.

If any of these facts are new in the life-history of this beetle, they might interest your readers. FRED. FLETCHER.

School of Agriculture, Ghizeh, Egypt, August 14.

THE LAVA-LAKE OF KILAUEA.

THE recent destructive eruption in Martinique has revived interest in the question of the causes of volcanic action. Only lately have I become sensible of the peculiar value of some observations of my own as evidence of the *primary* force which impels the ascent of lava from its interior habitat, as distinguished from the explosive violence caused by steam generated by the encounter of the ascending lava with ocean and other surface waters.

I have long believed the primary force to reside in the expansion of the gases originally occluded in the magma, ever since its first condensation from the nebula. Whenever released from solidifying pressure by disturbances of the superincumbent crust, the intensely hot magma bursts into a viscid foam and pushes upwards. In a quiet volcano like our Kilauea, meeting no water to generate explosive steam, the lava wells up continuously and steadily in a comparatively gentle fountain, which displays effervescence only on the surface.

In support of this opinion I beg to offer positive evidence contained in certain facts observed by myself in Kilauea during April 8–14, 1892, and on August 28, 1894. The volcano had been in very steady and uniform action for nearly two years before the earlier date, and so continued until a short time after the latter date, or nearly five years in all of a quiet, continuous and rather copious welling up of lava, wholly unattended by any explosive action.

On the earlier date I carefully observed the then existing lava-lake during six successive days. This lake occupied the centre of the inner crater, called Hale-a-mau-mau, or Fern-hut. The main crater called Kilauea is nine miles in circumference, averaging 400 feet in depth, and rather unevenly floored with recent lava. South-west of the centre is the inner pit of Hale-a-mau-mau. This pit was at that time nearly circular

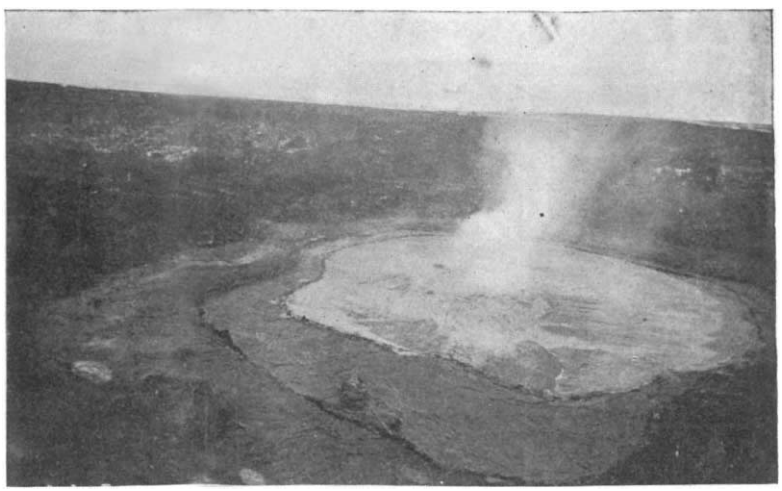

FIG. 1.—Fire-lake as seen in 1891–2.

and 2400 feet in diameter, with vertical sides averaging 150 feet down to the talus. Before the welling up of lava began in 1890, the pit had been about 700 feet deep. In two years the lava had risen 400 feet, and stood within 300 feet of the rim and main floor.

A lake of liquid lava, covered by a thin, spongy film, occupied the centre of the pit. This lake was nearly circular, averaging 850 feet in diameter. It was bordered by a low dyke, which partially restrained its frequent overflows. Outside of the dyke, freshly congealed lava sloped away to the talus. By day the crust-film was grey to the eye, but by night a deep red. It was traversed by numerous fissures of white fire. During the whole time three fountains of lava were welling up with somewhat regular intermittence, and three smaller ones at irregular intervals. There was no explosive action whatever.

The largest fountain was about 120 feet south-east of the centre of the lake. It played with great regularity about three times in a minute, rising in a round billow 25 feet high and 50 feet in diameter, bursting at the top and falling back to level, its discharge moving in a broad stream towards the centre of the lake. The fling of spray from its summit rose to 40 or 50 feet above the level.